## ABSTRACT OF THE DISCLOSURE

An aspect of the present invention is a method and apparatus for computing a geomagnetic transmission function. This apparatus includes a programmed digital computer running modeling software for modeling the transmission of cosmic ray particles through the magnetosphere. The software includes a model representing a solution to the Lorentz equation in a magnetic field given by $\mathbf{B} = \mathbf{B}_{IGRF}(\mathbf{r},t') + \mathbf{B}_{TSYG}(Kp,\mathbf{r},t')$. Another aspect of the present invention is a method and apparatus for computing a flux of particles at the outer surface of a satellite comprising, *inter alia*, an improved method and apparatus for computing a flux of solar heavy ions. This apparatus includes a programmed digital computer running modeling software for modeling the flux of cosmic ray particles through the outer surface of a satellite. Another aspect of the invention is a method and apparatus comprising a programmed digital computer running modeling software for modeling the effect of cosmic rays on microelectronics, where this software embodies at least one of the two foregoing aspects of the invention. Another aspect of the invention is a preferred embodiment of a method and apparatus comprising a programmed digital computer running modeling software for modeling the effect of cosmic rays on microelectronics, where this software embodies at least one of the two foregoing aspects of the invention, where this preferred embodiment is connected to a network, typically the internet, to permit remote users to use the invention.